

# PATENT ABSTRACTS OF JAPAN

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(71)Applicant : FOSTER ELECTRIC CO  
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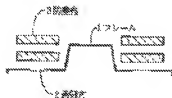
(72)Inventor : MIKUNIYA TAKASHI  
MOTOHASHI HIDEAKI

## (54) DUSTPROOF CLOTH AND ITS ADHERING METHOD

(57)Abstract:

PURPOSE: To improve problems such as difficulty in the use of an adhesive material and also necessity for preparing various kinds of dustproof cloth with different air-permeable quantity since the dustproof cloth of nonwoven fabric consisting of a fiber such as cotton, nylon, etc., is fixed to a frame by a solvent-type adhesive material.

CONSTITUTION: More than one sheet dustproof cloth 3 of nonwoven fabric formed by a nylon-system hot-melt adhesive material is arranged on the rear surface of the frame 1 of a small electric acoustic converter, etc., and the frame 1 is heated till around the melting point of the hot-melt adhesive material. Dustproof cloth 3 is molten in a part except the air-permeable holes 2 of the frame 1 and adhered and fixed to the frame 1. Since heat is not transmitted in the part of the air-permeable holes 2 of the frame 1, the



form as the dustproof cloth 3 is held without moltening and a system is functioned without missing dustproof and air permeable quantity adjusting activation.

## DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application]This invention relates to the protection-against-dust cloth used for protection against dust or quantity-of-airflow adjustment on the back with a small electroacoustic transducer etc.

[0002]

[Description of the Prior Art]A conventional example is explained based on drawing 5. In a figure, 1 is frames, such as a microphone, headphone, and a small loudspeaker, and 2 is the vent hole established in the frame 1. 5 is a protection-against-dust cloth of the nonwoven fabric which consists of textiles, such as cotton or nylon, and it is fixed to the back of the frame 1 via the elastomeric adhesive 4 which is solvent type adhesive, and it has protection against dust with small electroacoustic transducers, such as a microphone, headphone, and a small loudspeaker, and the function of the back of quantity-of-airflow adjustment.

[0003]

[Problem(s) to be Solved by the Invention]However, since the conventional protection-against-dust cloth is mainly using the nonwoven fabric which consists of textiles, such as cotton or nylon, and this protection-against-dust cloth is fixed to a frame with solvent type adhesive, Although adhesives revitalizing with heat the adhesives (VCM/PVC and acrylic) with difficult control of the coverage of adhesives which permeates easily used in order [ which requires time by adhesive setting. ] to form a nonwoven fabric further, and pasting a frame is also considered, Since re-active temperature becomes more than 200 degreeC., the quantity of adhesives also has little contraction of a nonwoven fabric greatly again, and adhesion is difficult and the protection-against-dust cloth of a nonwoven fabric generates a BATATSUKI sound by vibration. In order to prevent this, adhesives needed to be uniformly applied to the periphery of the vent hole established in the frame, and technical problems, like there is the necessity of arranging the various kind in which quantity of airflow differs from the necessity of choosing further the quantity of airflow of the protection-against-dust cloth used with the demand characteristics of a loudspeaker occurred.

[0004]This invention is made in view of such a point, and is a thing.

The purpose is to provide a protection-against-dust cloth which does not need to arrange the various kind which removes the evil by use of \*\*, and in which quantity of airflow differs, and an adhesion method for the same.

[0005]

[Means for Solving the Problem]In order to solve an aforementioned problem, a protection-against-dust cloth by this invention. A nonwoven fabric which has breathability from thermoplastics in a protection-against-dust cloth used for protection against dust or quantity-of-airflow adjustment on the back with a small electroacoustic transducer etc. is formed, said nonwoven fabric is arranged on frames, such as said small electroacoustic transducer, and it has the feature by heating said frame to carry out self welding. A nonwoven fabric which has breathability from hot melt system adhesives is formed, said nonwoven fabric is arranged on frames, such as said small electroacoustic transducer, and it has the feature by heating said frame to carry out self welding. In a protection-against-dust cloth which uses an adhesion method of a protection-against-dust cloth by this invention for protection against dust or quantity-of-airflow adjustment on the back with a small electroacoustic transducer etc., A nonwoven fabric which has

breathability from thermoplastics is formed, said nonwoven fabric is arranged on frames, such as said small electroacoustic transducer, and it has the feature by heating and carrying out self welding so that a portion which does not touch said frame may not fuse to paste up a protection-against-dust cloth and a frame. It has the feature to paste up a protection-against-dust cloth and a frame so that quantity of airflow [ in / one sheet or by piling up several sheets and using / for a protection-against-dust cloth of a nonwoven fabric formed from hot melt system adhesives / the backs, such as a small electroacoustic transducer, ] may be controlled.

[0006]

[Function]A frame is heated to near the melting point of hot melt adhesive, using the nonwoven fabric formed from hot melt adhesive as a protection-against-dust cloth. A protection-against-dust cloth is fused in portions other than the vent hole of a frame, and is pasted up and fixed by the frame. Since heat is not transmitted, the portion of the vent hole of a frame holds the gestalt of a protection-against-dust cloth, without fusing, and it functions, without spoiling protection against dust and quantity-of-airflow accommodation. There is no difficulty which applies elastomeric adhesive, it can carry out to adhesion and solidification in a short time, there is no evaporation of an organic solvent, and it is safe. Since the quantity of airflow demanded by piling up and using two or more protection-against-dust cloths of the nonwoven fabric formed from hot melt adhesive can be obtained, it can respond with the protection-against-dust cloth of one grade to much demand characteristics.

[0007]

[Example]Hereafter, one example of this invention is described based on a drawing. Drawing 1 and drawing 2 are the sectional views and rear elevations showing one example of this invention. In a figure, 1 is frames, such as a microphone, headphone, and a small loudspeaker, and 2 is the vent hole established in the frame 1. 3 is a protection-against-dust cloth of the nylon system nonwoven fabric formed from hot melt adhesive (melting point 105degreeC). After arranging one sheet thru/or two sheets or more for the protection-against-dust cloth 3 on the frame 1 and heating the frame 1 to 100 degreeC, it pressurizes with a jig from the upper part, and protection-against-dust cloths 3 other than vent hole 2 of the frame 1 are pasted up on the frame 1. Therefore, it can paste up in a short time, there is no evaporation of an organic solvent, and it is safe. In the vent hole 2 of the frame 1, the gestalt of the protection-against-dust cloth 3 is held, and the function of protection against dust and quantity-of-airflow regulation is not spoiled. Although it was considered as the nonwoven fabric which formed the protection-against-dust cloth 3 from nylon system hot melt adhesive in this example, the same operation effect is expectable also with the textile fabrics formed from hot melt adhesive. The main ingredients of hot melt adhesive and the melting point can be arbitrarily chosen with the characteristics (heat resistance, moisture resistance, etc.) demanded.

[0008]Drawing 3 is a figure in which having shown the frequency characteristic at the time of using the one protection-against-dust cloth 3 as the solid line a, and showing the frequency characteristic at the time of using the five protection-against-dust cloths 3 by the dotted line b. It turns out that low-pitched sound is controlled, so that from a figure and many protection-against-dust cloths 3 are used. Therefore, in order to double with the demand characteristics of a loudspeaker, it is not necessary to arrange the protection-against-dust cloth of the various kind in which quantity of airflow differs.

[0009] Drawing 4 is a figure showing a protection-against-dust cloth and the graph of the relation of permeability. The permeability test built the protection-against-dust cloth into the loudspeaker, and performed it by the fragile method of JIS L1096. A horizontal axis expresses the number of sheets of a protection-against-dust cloth, and the vertical axis expresses the permeability which is a constant of quantity of airflow. It turns out that permeability is low, so that there is much number of sheets of a protection-against-dust cloth. It is shown that there is fixed air resistance without becoming infinite, even when there is zero protection-against-dust cloth. Therefore, since the quantity of airflow demanded by piling up and using two or more protection-against-dust cloths can be obtained, it can respond with the protection-against-dust cloth of one grade to much demand characteristics.

[0010]

[Effect of the Invention] As explained above, the protection-against-dust cloth by this invention, in the protection-against-dust cloth used for protection against dust or quantity-of-airflow adjustment on the back with a small electroacoustic transducer etc., Since it had composition which carries out self welding by forming the nonwoven fabric which has breathability from thermoplastics, arranging said nonwoven fabric on frames, such as said small electroacoustic transducer, and heating said frame. Since it had composition which carries out self welding by forming the nonwoven fabric which has breathability from hot melt system adhesives, arranging said nonwoven fabric on frames, such as said small electroacoustic transducer, and heating said frame, The adhesion method of the protection-against-dust cloth by this invention forms the nonwoven fabric which has breathability from thermoplastics. Since it was made to paste up a protection-against-dust cloth and a frame by heated and carrying out self welding so that the portion which arranges said nonwoven fabric on frames, such as said small electroacoustic transducer, and does not touch said frame might not fuse, Since it was made to paste up a protection-against-dust cloth and a frame so that quantity of airflow [ in / one sheet or by piling up several sheets and using / for the protection-against-dust cloth of the nonwoven fabric formed from hot melt system adhesives / the backs, such as a small electroacoustic transducer, ] might be controlled, the necessity of arranging the various kind which removes the evil by use of solvent type adhesive and in which quantity of airflow differs - there is nothing . That is, it can paste up in a short time, there is no evaporation of an organic solvent, and it is safe. In the vent hole of a frame, the gestalt of a protection-against-dust cloth is held, the function of protection against dust and quantity-of-airflow regulation is not spoiled, and since the quantity of airflow further demanded by piling up and using two or more protection-against-dust cloths can be obtained, there is an effect of being able to respond with the protection-against-dust cloth of one grade to much demand characteristics.